
Clinical translation of bioartificial liver support systems with human pluripotent stem cell-derived hepatic cells.

Journal: World J Gastroenterol

Publication Year: 2017

Authors: Ryoichi Sakiyama, Brandon J Blau, Toshio Miki

PubMed link: 28373763

Funding Grants: Development of a clinical-grade extracorporeal liver support system using human induced pluripotent stem cell-derived hepatic cells

Public Summary:

This mini-review paper introduced the concept and the different types of bioartificial liver (BAL) devices. We also discussed the potential of human stem cell-derived liver cells as an alternative cell source for producing a clinical grade BAL system.

Scientific Abstract:

There is currently a pressing need for alternative therapies to liver transplantation. The number of patients waiting for a liver transplant is substantially higher than the number of transplantable donor livers, resulting in a long waiting time and a high waiting list mortality. An extracorporeal liver support system is one possible approach to overcome this problem. However, the ideal cell source for developing bioartificial liver (BAL) support systems has yet to be determined. Recent advancements in stem cell technology allow researchers to generate highly functional hepatocyte-like cells from human pluripotent stem cells (hPSCs). In this mini-review, we summarize previous clinical trials with different BAL systems, and discuss advantages of and potential obstacles to utilizing hPSC-derived hepatic cells in clinical-scale BAL systems.

Source URL: <https://www.cirm.ca.gov/about-cirm/publications/clinical-translation-bioartificial-liver-support-systems-human-pluripotent>